

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
BRIEF/WAIST ASSEMBLY, ITEM 104 ----- 0104-210605- 07/08/09/10/11/12 (1)	2/1RB	104FM20 Loss of tether bracket screw. Defective material; screw, helicoils thread lock adhesive.	END ITEM: Loss of one of four screws. GFE INTERFACE: Load is transferred to remaining screws. MISSION: None with loss of single screw. CREW/VEHICLE: None for single failure. Possible loss of crewman with loss of two screws and bracket. TIME TO EFFECT /ACTIONS: N/A TIME AVAILABLE: N/A TIME REQUIRED: N/A REDUNDANCY SCREENS: A-PASS B-FAIL C-PASS	A. Design - The waist bearing tether bracket screws are fabricated from A-286 stainless steel and are procured to MS or NAS specifications. Loss of the tether bracket screw is precluded in design by adherence to standard engineering torque requirements for screw installation and the use of thread lock adhesive. Design requirements for proper installation of helicoils are specified in the assembly procedures when the helicoils are installed in the waist bearing. B. Test - PDA: Component - See inspection. Certification Test - The tether brackets and attachment screws have passed shock, vibration and acceleration testing without loss of screw torque. Ref. Hamilton Standard Test Reports, TER 3067, 3048, 3043, and 3076. C. Inspection - Components and material manufactured to ILC requirements at an approved supplier are documented from procurement through shipping by the supplier. ILC incoming receiving inspection verifies that the material received is as identified in the procurement documents; that no damage has occurred during shipment; and that supplier certifications have been received which provide traceability information. The following MIP's are performed during the Brief/Waist assembly process to assure the failure cause is precluded from the fabricated item: 1. Verification of loctite application. 2. Verification of presence of screws during torquing. 3. Helicoil installation is verified during source inspection at the supplier. PDA Test - The following inspection points are performed at the LTA assembly level in accordance with ILC Document 0111-710112: 1. Verification of no material degradation. 2. Visual inspection for damage after proof pressure test. D. Failure History - None. E. Ground Turnaround - None, for every component within its limited life requirements. Every 4 years or 229 hours of manned pressurized time, the tether bracket is removed and reinstalled in order to accommodate maintenance of the bearing. Loctite application and screw torque is verified at this time. F. Operational Use - Crew Response -

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104FM20

Pre/post-EVA : Single failure not detectable, no response. EVA : Single failure not detectable, no response.

Special Training - No training specifically covers this failure mode.

Operational Considerations - Not applicable.

EXTRAVEHICULAR MOBILITY UNIT
SYSTEMS SAFETY REVIEW PANEL REVIEW
FOR THE
I-104 LOWER TORSO ASSEMBLY (LTA)
CRITICAL ITEM LIST (CIL)

EMU CONTRACT NO. NAS 9-97150

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